PLANORBINA HALDEMAN, 1842, *TAPHIUS* ADAMS & ADAMS, 1855 AND *ARMIGERUS* CLESSIN, 1884 (MOLLUSCA, GASTROPODA): PROPOSED SUPPRESSION UNDER THE PLENARY POWERS. Z.N.(S.) 1392

C. A. Wright (*British Museum* (*Natural History*), *London*)

The medically important molluscan intermediate hosts of the human parasite *Schistosoma mansoni* have for some time been placed in the nominal genera *Biomphalaria*, *Australorbis* and *Tropicorbis*. It is known that these three should be united into a single taxonomic genus and recently B. Hubendick (1955, *Trans. Zool. Soc. Lond.* **28**(6) : 453–542) has shown that on anatomical grounds the genus should include the nominal genera *Taphius* and *Platytaphius*. By application of the Law of Priority *Taphius* should take precedence as the senior synonym and W. L. Paraense (1958, *Rev. Bras. Biol.* **18**(1) : 65–80) has presented the case in favour of following this course. However, it is likely that many medical parasitologists and public health workers will not be prepared to adopt the name *Taphius* and further investigation has shown that there is an older available name for the group, namely *Planorbina* Haldeman, 1842. The full details of the case have been discussed by Barbosa, Hubendick, Malek and Wright (*Ann. Mag. nat. Hist.* in press). In that account the authors mention the problem of *Armigerus* which has also been used as the generic name for the group.

2. In a group of such great economic importance it is obviously essential that the nomenclature should be stabilized and it is the purpose of this application to ask for the suppression under the plenary powers of the names *Planorbina* Haldeman, 1842, *Taphius* Adams & Adams, 1855, and *Armigerus* Clessin, 1884.

3. *Planorbina* was named as a section of *Planorbis* by S. S. Haldeman (1842, *A Monograph of the Freshwater Univalve Molluscs of the United States.* E. G. Dorsey, Philadelphia, p. 14). No type-species was designated for this section nor were any species referred to it in that publication but W. H. Dall (1905, Land and Freshwater Molluscs, *Harriman Alaska Expedition* **13** : 1–158) designated *Planorbis olivaceus* Spix (1827, *Testacea fluviatilia Brasiliensia* p. 26) as type of *Planorbina* Haldeman and referred *Planorbis glabrata* Say (1818, *J. Acad. nat. Sci. Philad.* **1**(2) : 280) to the section. Both of these species belong in the nominal genus *Australorbis*. H. A. Pilsbry (1934, *Proc. Acad. nat. Sci. Philad.* **86**(1) : 29–66) argued that Dall had misinterpreted Haldeman's definition of *Planorbina* and, because *P. olivaceous* could not possibly be included in that definition, Pilsbry stated that " *Planorbina* of Haldeman, 1843, has nothing to do with *Planorbina* Dall, 1905 ". H. Watson (1954, *Rev. Zool. Bot. Afr.* **49** (3 & 4) : 209–220) has also suggested that *Planorbina* Haldeman and *Planorbina* Dall are not synonymous but that the former referred to *Anisus* Studer, 1820 (*Naturw. Anz. Allg. Schweiz. Gesell.* **3**, p. 23). However, Dall designated a type-species for Haldeman's *Planorbina* and, since that name

was published with a definition it is an available name and takes priority from its original date of publication (*Bull. zool. Nomencl.* 4 : 160 ; 1950). *Planorbina* was used in conjunction with the specific names *guadalupensis*, *glabratus* and *olivaceus* by L. Germain (1921, *Rec. Indian Mus.* 21) and with *olivaceus* by J. Thiele (1931, *Handbuch der Syst. Weichtierkunde* **I**, p. 480, Fischer, Jena) and more recently by J. B. Burch (1960, *Ztschr. f. Tropenmed. u. Parasit. Stuttgart* **11**(4) : 449–452) with *glabratus* and *sudanica*.

4. *Taphius* was proposed as a sub-genus of *Planorbis* by H. & A. Adams (1855, *The Genera of Recent Mollusca* 2, p. 262, van Voorst, London) and *Planorbis andecolus* d'Orbigny (1835, *Mag. Zool.* 5(61 & 62) : 26) from Lake Titicaca was the type-species by original designation. Paraense (loc. cit.) quotes eighteen references between the years 1870 and 1957 to show that *Taphius* is a name in frequent use but most of the authors whom he quotes have merely mentioned the name with its original definition in lists or have referred to it in synonymies. Apart from Paraense's own recent use of *Taphius* it is a name almost unknown to medical biologists and only a little more familiar to professional malacologists.

5. *Armigerus* was named as a section of *Planorbis* by Clessin (1884, *Conch. Cab. Martini-Chemnitz* (edn. 2) I, **17**, p. 120) in the discussion of *Planorbis albicans* Pfeiffer and it is this species which J. E. P. Morrison (1947, *Nautilus* **61**(1) : 30–31) designated as type for *Armigerus*. *P. albicans* had formerly been placed in *Tropicorbis*. H. B. Baker (1947, *Nautilus* **61**(2) : 71–72) suggested that Clessin had intended to indicate that *P. albicans* belonged in the section of *P. armigerus* Say and that the type of this section must, therefore, by absolute tautonymy, be *P. armigerus* but this species is the type of *Planorbula* Haldeman, 1842, and *Armigerus* must fall as a synonym of *Planorbula*. Whether this argument is correct or not is not certain but, either way, *Armigerus* has little more than nuisance value as it is a name largely unknown to parasitologists and has only been used by one malacological specialist.

6. *Biomphalaria* Preston, 1910 (*Ann. Mag. nat. Hist.* (ser. 8) **6**(35) : 535, Pl. 7, figs. 26 & 26a) has as type-species, by monotypy, *B. smithi* Preston (loc. cit.), an unusual planorbid snail from Lake Edward. Anatomical studies, summarised by H. Watson (loc. cit.), have shown that all of the large planorbid snails of the ethiopian region belong to a single genus and they have all been placed in *Biomphalaria*. This name is probably the most widely known and is one of the more extensively used of the series. It is the name of the genus to which all of the African intermediate hosts of *Schistosoma mansoni* belong and a report of a World Health Organisation Study Group (*W. H. O. Tech. Rep. Ser.* **90**, pp. 5 & 6, 1954) recommended that *Biomphalaria* should be the name used for all intermediate hosts of *S. mansoni* and that *Australorbis* and *Tropicorbis* should be considered as its junior synonyms.

7. *Tropicorbis* was established as a section of *Planorbis* by A. P. Brown and H. A. Pilsbry, (1914, *Proc. Acad. nat. Sci. Philad.* **66**(1) : 209–213). *Planorbis liebmanni* Dunker (1886, *in* Küster, H. C., *Syst. Conch.-Cab.* p. 59) was designated as type-species and *P. siliceus*, an Oligocene fossil from Antigua was referred to the section. This is a well-known name in Central and South

America and several neotropical intermediate hosts of *S. mansoni* have been referred to the genus.

8. *Platytaphius* was proposed as a section of *Planorbis* by H. A. Pilsbry (1924, *Proc. Acad. nat. Sci. Philad.* 76(1) : 49–66) for *P. heteropleurus* Pilsbry, 1924, from Lake Titicaca and this species is the type by monotypy. It is not a well-known name and has rarely been used.

9. *Australorbis* was described as a new genus by H. A. Pilsbry 1934 for *Planorbis guadalupensis* Sowerby (1821, *Genera of Shells* II). In discussing this new genus Pilsbry states that it should perhaps be treated as a sub-genus of *Tropicorbis*, a group which he then considered should have full generic status. *Australorbis* is a very well-known name and is in frequent use. Some of its South American members are intermediate hosts for *S. mansoni* and *A. glabratus* has been the subject of many laboratory studies.

10. In order to eliminate the great confusion which exists at present in the generic nomenclature of the intermediate hosts of *Schistosoma mansoni* I request the International Commission on Zoological Nomenclature :

(1) to use its plenary powers to suppress the following generic names for the purposes of the Law of Priority but not for those of the Law of Homonymy :
   (a) *Planorbina* Haldeman, 1842 ;
   (b) *Taphius* H. & A. Adams, 1855 ;
   (c) *Armigerus* Clessin, 1884 ;

(2) to place the following generic name on the Official List of Generic Names :
   Biomphalaria Preston, 1910 (gender, feminine), type-species by monotypy : *Biomphalaria smithi* Preston, 1910 ;

(3) to place the following specific name on the Official List of Specific Names : *smithi* Preston, 1910, as published in the binomen *Biomphalaria smithi* (type-species of *Biomphalaria*) ;

(4) to place the following generic names on the Official Index of Rejected and Invalid Generic Names in Zoology :
   (a) *Planorbina* Haldeman, 1842 ;
   (b) *Taphius* H. & A. Adams, 1855 ;
   (c) *Armigerus* Clessin, 1884.